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Correspondence

The global human monkeypox outbreak in 2022: An overview*Dear Editor,*

Human cases of monkeypox have recently risen across a large geographic area, with the potential for the disease to spread further and the lack of reliable surveillance contributing to a heightened level of concern. Smallpox-like symptoms can be seen in monkeypox patients, but the disease is less severe and can be transmitted from animals to humans. It is caused by the Monkeypox virus (MPXV), which is in the same group as the smallpox virus (genus *Orthopoxvirus*, family *Poxviridae*). As of the 7th of June in 2022, 53 different countries had reported a total of 5783 laboratory-confirmed cases of monkeypox. The vast majority of cases have occurred among men who engaged in sexual intercourse with other men, which increases the possibility of sexual transmission. Travel is not a factor in any of the cases at all, with the exception of a few that have been reported. Even though monkeypox is not a typical sexually transmitted disease, it can spread quickly through sexual and close contact. Sexual or skin-to-skin contact, as well as transmission via fomites like towels, bedding, and sex toys, are all possible methods of virus inoculation on skin and mucosal surfaces [1]. The increasing number of monkeypox cases around the world necessitates further research. Researchers should focus on mental health disorders, pregnant and breast feeding mothers and healthcare providers as anxiety, fear, stress and depression are more likely to develop in infected patients and even after recovery.

In the medical literature, human-to-human transmission of monkeypox, including nosocomial and household transmission, is extensively documented. Close contact with lesions, respiratory droplets, body fluids, and contaminated materials like bedding are all ways that the monkeypox virus spread from person to person [1,2]. One of the potential risk factors is eating inadequately cooked meat and other animal products derived from infected animals.

The incubation period for monkeypox ranges from 5 to 21 days. The infection can be divided into two periods: the invasion phase, which lasts 0–5 days, with symptoms including fever, headache, back pain, myalgia, and lymphadenopathy. Lymphadenopathy is a unique feature of monkeypox when compared to other diseases that may initially appear similar, including smallpox, chickenpox and measles. The second period is the skin eruption period. It typically begins between 1 and 3 days after onset of fever. The face and extremities are more frequently affected than the trunk by rash. In 95% of cases, it affects the face. In 75% of cases, it affects the palms of the hands and the soles of the feet [3].

The rash develops in stages, starting with macules and progressing to papules, vesicles filled with clear fluid, pustules filled with yellowish fluid, and crusts that eventually dry out and fall off. In addition, it affects the oral mucous membranes (in 70% of cases), genitalia (30%), conjunctivae (20%), and cornea (20%). Lesions range from a few to thousands. Large sections of skin can be sloughed off in extreme cases

[3].

Pregnant and lactating women as well as children and those with weakened immune systems are at risk for severe complications from monkeypox [1]. The West African clade appears to cause less severe disease than the Congo Basin clade, with a case fatality rate of 3.6% compared to 10.6% [4]. There are a number of complications that can arise from monkeypox such as sepsis, encephalitis, bronchopneumonia, secondary infections, and infection of the cornea, which can lead to vision loss.

Other rash illnesses, such as measles, chickenpox, syphilis, bacterial skin infections, and medication-related allergies, must be included in the differential diagnosis of human Monkeypox virus (hMPXV). During the prodromal stage of illness, lymphadenopathy can be a clinical feature that differentiates monkeypox from smallpox and chickenpox.

Whenever the presence of monkeypox is suspected, medical professionals are required to take a sample and deliver it to a laboratory equipped to handle the analysis. To confirm the presence of monkeypox, a variety of laboratory tests and specimens must be examined. It is important to package and ship samples in accordance with national and international regulations. Because of its accuracy and sensitivity, the Polymerase chain reaction (PCR) is the laboratory test of choice for confirmation of human monkeypox [3]. Fluid from vesicles, dry crusts and pustules are the best diagnostic samples for monkeypox. In some cases, a biopsy may be an option [3]. A cold, dry, and sterile tube is required for storing lesion samples until testing can be performed [3]. Because of the short duration of viremia relative to specimen collection after symptoms begin, routine PCR blood tests should not be performed on patients [5].

Orthopoxviruses are cross-reactive; antigen and antibody testing cannot confirm monkeypox. As a result, the use of serology and antigen detection methods in diagnostics or case investigations is not advised due to a lack of resources [3]. Patients' medical history, such as age, date of illness onset, skin rash, place of collection, and current health status, must be provided with samples in order to properly interpret test results. Published mortality rates vary substantially and are vulnerable to case ascertainment bias [3]. Case fatality rates ranging from 1% to 10% have been reported in outbreaks in the Congo Basin.

The CDC reported multiple cases of monkeypox in North America, Europe, and Australia, where it is not endemic. There is a lack of evidence on viral kinetics and the length of viral shedding, and there are no approved treatments for human monkeypox disease. Both brincidofovir and tecovirimat, two oral drugs approved in the United States for treatment of smallpox, have shown efficacy against monkeypox. The clinical treatment of monkeypox should be significantly improved to alleviate symptoms, manage the disease, and prevent further complications. To ensure proper nutrition, patients should be given fluids and food as needed. Antibiotic therapy is the standard of care for secondary

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infections.

The primary method for preventing monkeypox is to educate people about the preventative measures they can take to lower their risk of being infected with the virus and to raise awareness among the general public about the factors that put them at increased risk of contracting the disease. However, stopping the spread of the current monkeypox outbreak and protecting frontline health-care workers and those most at risk around the world should be the top priorities for this outbreak [6].

For containment of an outbreak, rapid detection of new cases is critical. The most significant risk factor for monkeypox virus infection is direct contact with infected persons. Healthcare workers and members of their families are more susceptible to disease. Healthcare workers should take standard precautions to avoid spreading infections when caring for patients with confirmed or suspected monkeypox virus infection or when handling specimens from these patients. It is preferable to provide medical care for a monkeypox patient to individuals who have previously been immunized against the disease. If monkeypox virus infection is suspected, specimens from infected humans and animals should be handled by professionals in laboratories that are properly equipped. To ensure the safety of patient specimens during transport, they must be triple packaged in accordance with WHO guidelines for the transport of infectious materials [3].

According to the Centers for Disease Control and Prevention (CDC), vaccines are effective in protecting people from monkeypox infection. Currently, the United States has two licensed vaccines for smallpox prevention: ACAM200 and JYNNEOSTM (also known as Imvamune or Imvanex). To prevent onset of the disease, the CDC advises administering the vaccine within four days of exposure. Vaccination may reduce the symptoms of the disease but may not prevent the disease if given within 4–14 days of the date of disclosure [7].

Finally, the 2022 monkeypox outbreak is a highly contagious disease and is spreading globally. This disease is not epidemic anymore. Global preparedness and prevention strategies must be applied throughout the world. The smallpox vaccination is mandatory to prevent the disease's onset. However, healthcare workers should increase awareness to identify suspected cases.

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Data statement

All data presented in the present review is available online and can be accessed from the appropriate reference in the reference list.

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